

## **Vermont Mental Health Performance Indicator Project**

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### MEMORANDUM

TO: Vermont Mental Health Performance Indicator Project  
Advisory Group and Interested Parties

FROM: John Pandiani  
Sheila Pomeroy

DATE: June 7, 2002

RE: Atypical Anti-Psychotic Medications and Employment Outcomes

The attached is the handout from a PIP presentation at last week's Annual National Conference on Mental Health Statistics. This presentation reported the findings of a statewide study of change in employment rates and income for people beginning atypical medication. The study compared employment and income before receipt of atypical medications to employment and income during receipt of atypical medications for adults receiving services for severe and persistent mental illness. This project relied entirely on extracts from Vermont's Medicaid paid claims database and the Department of Employment and Training database. Direct record linking methodology was used to measure the employment rates for people beginning atypical medication because these data sets share unique person identifiers.

Results indicate there was a significant decrease in average annual wages for men and a marginally significant decrease in annual wages for women aged 30 to 40. Employment rates after beginning atypical medication were lower than before beginning medication for both men and women in this age group, although the differences were not statistically significant. There was no change in employment or income associated with beginning atypical anti-psychotic medication for either men or women in the 41 to 60 year age group. Among 18 to 29 year olds, employment and income after beginning atypical medication increased for men and decreased for women but the changes were not statistically significant.

These findings are similar to our earlier findings regarding the relationship between atypical medications and criminal justice involvement ([www.state.vt.us/dmh/Data/PIPs/2002/pip022202.pdf](http://www.state.vt.us/dmh/Data/PIPs/2002/pip022202.pdf)). That research found young men benefited from these medications (experiencing decreased criminal justice involvement) but young women did not (experiencing increased criminal justice involvement). These findings are substantially different from findings of controlled clinical trials that showed significant beneficial effects of atypical medications. As such, these findings raise questions about the generalizability of results of controlled clinical trials to community settings.

We look forward to your comments, questions, and suggestions for further research to [pip@ddmhs.state.vt.us](mailto:pip@ddmhs.state.vt.us) or 802-241-2638.

# New Generation Atypical Anti-Psychotic Medications and Employment Rates for Outcomes

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## ABSTRACT

This presentation reports the findings of a statewide study of change in employment rates and income for people beginning atypical medication. The study compared employment and income before receipt of atypical medications to employment and income during receipt of atypical medications for adults receiving services for severe and persistent mental illness. This project relied entirely on extracts from Vermont's Medicaid paid claims database and Department of Employment and Training database. Results indicate there was a significant decrease in average annual wages for men and a marginally significant decrease in annual wages for women aged 30 to 40. Employment after beginning atypical medication were lower than before beginning medication for both men and women in this age group, although the differences were not statistically significant. There was no change in employment or income associated with beginning atypical anti-psychotic medication for either men or women in the 41 to 60 year age group. Among 18 to 29 year olds, employment and income after beginning atypical medication increased for men and decreased for women but the changes were not statistically significant. These findings raise questions about the generalizability of results of controlled clinical trials to community settings.

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Utilization of new "atypical" anti-psychotic medications has been identified by the National Association of State Mental Health Program Directors (NASMHPD) as one of the, "evidence-based practices" that should be implemented by publicly funded community mental health programs. NASMHPD's framework includes rates of access to atypical anti-psychotic medication for clients served by state mental health programs as an important indicator of the performance of systems of care because,

"Organizations that are focused on providing quality services work to insure that consumers are receiving treatments that are consistent with defined 'best practices'. At least two sets of guidelines have been developed for the treatment of psychosis. Both consider new generation atypical anti-psychotics to be preferable over older agents. New generation agents have demonstrated advantages in efficacy and, with the exception of clozapine, safety over older agents. Use of the agents may be an indicator of the degree to which consumers of the organization are receiving treatments that conform to best practices." <sup>1</sup>

Much of the research endorsing this practice pattern, however, is hospital-based and the generalizability of the findings to community-based programs that serve a diverse clientele in a variety of settings is not clear.

This presentation reports the findings of a statewide study of the integration of new generation atypical anti-psychotic medications into routine practice patterns in Vermont's statewide community-based system of care for adults with severe and persistent mental illness. This research explored potential patterns of change in employment rates and income of people "beginning" atypical medication and by comparing employment and income before receipt of atypical medications to employment and income during receipt of atypical medications.

## **Previous Research**

Previous research by the authors examined the impact of atypical medication on criminal justice involvement of people beginning atypical medication <sup>2</sup>. This research found that fewer adults served by community mental health programs for people with severe and persistent mental illness got into trouble with the law after beginning atypical anti-psychotic medication than before. This impact was not uniformly felt, however. Men experienced decreased criminal justice involvement, while criminal justice involvement for women increased during the same time period. Access to atypical medication was substantially greater for people who had previously been in trouble with the law and the difference was greater among younger clients. This statewide study relied entirely on existing databases in conjunction with emerging statistical techniques that measure cross service sector involvement without reference to personally identifiable information.

## **Subjects**

The subjects of this research include all 494 adults aged 18 to 60 who received Medicaid reimbursed services from one of Vermont's community mental health programs for adults with severe and persistent mental illness and began atypical medication during July 1997 through December 2000. The study population included more women than men (58% vs. 42%). Almost half (46%) of the subjects were 41 to 60 years of age, about one third (35%) were 30 to 40, and about one in five (19%) were in the 18 to 29 year age group. Recipients of Medicaid reimbursed services represented 90% of all individuals aged 18 to 60 who were served by these community programs during the study period. Forty-eight percent of the individuals in the study population have a primary schizophrenia diagnosis (schizophrenia, schizophreniform, or schizoaffective), and 26% have a primary affective diagnosis (bipolar, major depression, or dysthymia).

## Method

This study conformed to a classic pre/post quasi-experimental design <sup>3</sup> and used unobtrusive measures to control both the cost and the reactive effects of measurement <sup>4</sup>. This project relied entirely on extracts from two statewide operational/administrative databases. Information on utilization of community mental health programs and atypical medications was obtained from Vermont's Medicaid paid claims database. Information on individuals' employment status and income was obtained from the Vermont Department of Employment and Training.

The Medicaid database provided two sets of targeted extracts. The first set of extracts included all individuals served by community programs for adults with severe and persistent mental illness during the specified time period. The second set of extracts included all paid claims for atypical anti-psychotic medication. The community program data set was aggregated to the person level. The medication data set was aggregated to the person and calendar quarter level, and the two files were linked on the basis of Social Security Number. All records for people receiving both community services and atypical medications were selected for further analysis. Each of the resulting records included the Social Security number, date of birth, and gender of the community service recipient and the recipient's atypical medication status (Yes or No) for each calendar quarter during the study period. For purposes of this study, individuals were categorized as "beginning" atypical medication if they did not receive atypical medication during two consecutive quarters but did receive atypical medication during each of the following two quarters. Records for individuals who began atypical medication were selected for further analysis.

The Vermont Department of Employment and Training database provided one record for each employer of each individual in the study population who was employed during each calendar quarter of the study period. Every record included the social security number and the total income from the employer. Traditional record linkage technology based on social security number was used to match records from the services data sets with records from the employment data sets.

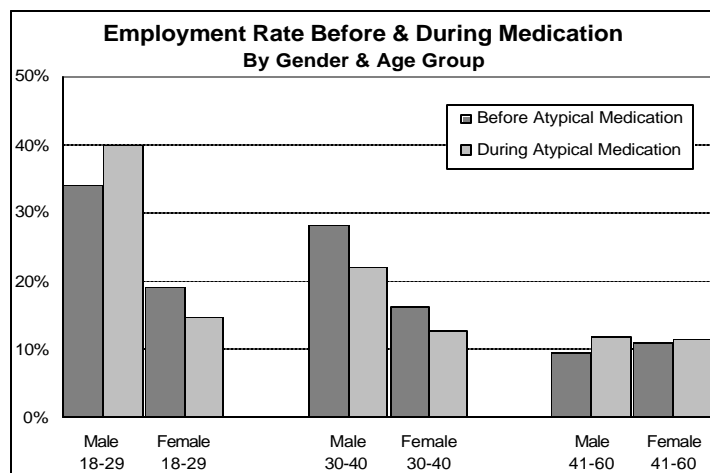
In order to determine the degree to which beginning atypical anti-psychotic medication was related to employment and income, the employment status and income of service recipients was determined for two time periods. The first time period was the first half of the year, when they did not receive medication. The second time period was the second half of the year, when they did receive medication. The resulting rates of employment and income were averaged for the five study years examined in this study. Because employment and income of recipients of mental health services are strongly influenced by age and gender, all analyses are age and gender specific.

Two measures of employment are used in this study. The first measure is the percent of clients employed. The second measure is annualized earnings per client beginning atypical medication. Earnings per client beginning atypical medication was selected over earnings per employed client because it is more relevant to the program evaluation paradigm under which this research is conducted.

## Findings

Results of this analysis indicate that there was no change in employment or income associated with beginning atypical anti-psychotic medication for either men or women in the 41 to 60 year age group.

In the 30 to 40 year age group, rates of employment after beginning atypical medication were lower than before medication for both men and women, although the differences were not statistically significant. Among 30 to 40 year olds



beginning atypical medication there was a significant decrease in average annual wages for men and a marginally significant decrease in annual wages for women.

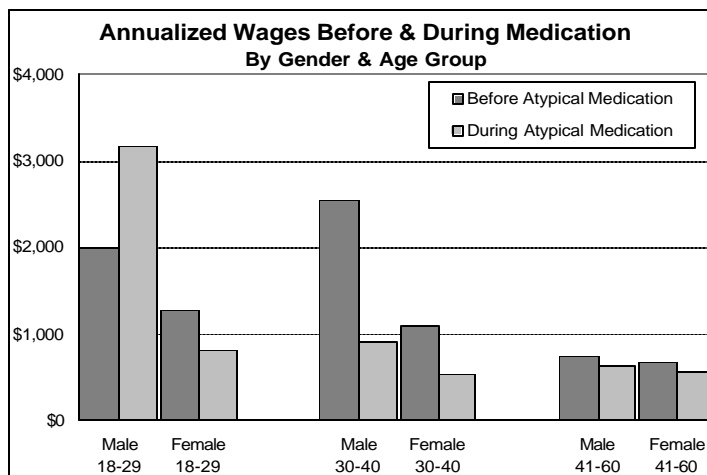
Among 18 to 29 year old men, beginning atypical medication, there was an increase (not statistically significant) in both employment and income. Women in this age group, experienced a decrease (not statistically significant) in both employment and income.

## Discussion

This project has demonstrated the utility of existing administrative data sets for monitoring the implementation and evaluating the outcomes of evidence-based practice in community settings. The results of this analysis suggest a positive impact of atypical anti-psychotic medications for only one age/gender group (young men) although the findings are not statistically significant for either employment rates or average wages. For other groups, the findings suggest that atypical anti-psychotic medication have no impact or a negative impact on employment and income. Our one statistically significant finding indicated a decrease in wages for 30 to 40 year old men.

These findings are similar to our earlier findings regarding the relationship between atypical medications and criminal justice involvement <sup>2</sup>. That research found young men benefited from these medications (experiencing decreased criminal justice involvement) but young women did not (experiencing increased criminal justice involvement). We believe these findings suggest the need to review the results of clinical trials with regard to age and gender diversity of the subject populations to assure inclusion of sufficient numbers of subjects in different age/gender categories. Findings of these clinical trials should also be reviewed to determine if age/gender specific effects are evident when the results are taken as a whole.

We also believe that these findings support the need for continued community-based, functionally focused research regarding the efficacy of atypical anti-psychotic medications. The approaches used in this study and our previous work provide valuable models for efficient and effective evaluation of the introduction of new medications and other emerging treatment models in community settings. Because these approaches use existing data resources, they are much more economical than original data collection. These data based approaches support continuous evaluation and can be sensitive to changing practice patterns as they occur because the databases include historical data and are continuously updated.



## References

<sup>1</sup> National Association of State Mental Health Programs Directors. (1998) *Performance Measures of Mental Health Systems*. Arlington, VA. National Association of State Mental Health Program Directors.  
<http://www.rdmc.org/nri/firstpage.htm>

<sup>2</sup> Pandiani JA, Pomeroy SM, and Banks SM (2002) New Generation Atypical Anti-Psychotic Medications: Access to Care and Criminal Justice Outcomes. Paper presented at the Twelfth Annual NASMHPD Conference on State Mental Health Agency Services Research, Program Evaluation, and Policy.

<sup>3</sup> Campbell DJ & Stanley, JC (1963) *Experimental and Quasi-Experimental Designs for Research*. Chicago, Rand McNally.

<sup>4</sup> Webb EJ, Campbell DT, Schwartz RD & Sechrest, L (1966) *Unobtrusive Measures: Nonreactive Research in the Social Sciences*. Chicago: Rand McNally.